IAD/OSS-07/67
12 January 1967

MEMORANDUM FOR: Assistant for Technical Development, NPIC

FROM: Chief, Imagery Analysis Division, CIA

SUBJECT: Request for the Development of a "PI Comparator"

1. Experience has established the fact that our PIs frequently need measurements to aid in analysis during the detailed imagery interpretation process and we are firmly convinced that this process is accelerated, with consequent savings in time, manpower, and money, when the interpreter is able to perform the necessary measurements himself. Thus, in meeting CIA requirements we have, in the past, employed many mensuration techniques and devices including the following:

a. Tube magnifiers and boxwood scales (with slide rules and calculating machines)

25X1 b. [ ] M-5 microstereoscopes with Filar eyepieces

c. Glass plate reticules

25X1 d. [ ] Measuring Macroscopes

e. [ ] Dual Power Macroscopes

f. [ ] Projected Scale Micrometers (two models)

g. [ ] Filar eyepieces on Twin Dynazoom Microstereoscopes

h. [ ] Filar eyepieces on Twin Dynazoom Microstereoscopes

IAD/OSS-07/67
12 January 1967

25X1 i. [redacted] M-5 Microstereoscopes in conjunction with a Teletype on-line to the 490 computer.

25X1 j. [redacted] 405-A and 405-B Stereo Chip Comparators with Teletypes

Except for the Chip Comparators, most of the above devices have been successfully applied to our mensuration problems. Unfortunately, the Chip Comparators, precision devices designed to operate on-line with the 490 computer, have been plagued with electronic malfunctions, and during the period they were "operational" their use was hampered by less than adequate computer programming and limited "computer storage" capability. Although corrective action is being taken in an attempt to resolve these difficulties, operational reliability has yet to be established.

2. As system resolution improves, we are certain to require improved mensuration accuracy, not always to the precision of the touted + or - 1/4 Micron "capability" of the 405-B Chip Comparators, but certainly greater than the other devices mentioned in paragraph one (1) above. Thus, we believe it is imperative that the TDS take steps to develop an instrument which will fall between the 405-B Chip Comparator and the

25X1 [redacted] M-5 Microstereoscope (with Filar eyepieces) in both function and design; being more precise than the M-5, but less accurate, and less sophisticated than the 405-B. We desire an instrument which is compact and portable, is digitized in both X and Y axes, and can operate in a decentralized/independent environment, i. e., without support from a central computer facility. We envision, therefore, that the "PI comparator" would be interfaced with small general purpose computers such as those used by the Navy for their Stereo Correlation Viewers in Integrated Operational Intelligence Systems (IOIS) on shipboard, and by the Air Force in some of their "mobile" PI facilities.

To say roll-around 1.66 type 1 per 1.66 is o.k.

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3. Due to the time delays inherent in research and development of this type, it is highly desirable that this project be initiated in FY-67. To this end we would be pleased to participate in the engineering analysis and design phases upon request, and ask that you coordinate specifications with the IAD through [redacted] Chief, Operations Support Staff. 25X1

[redacted]

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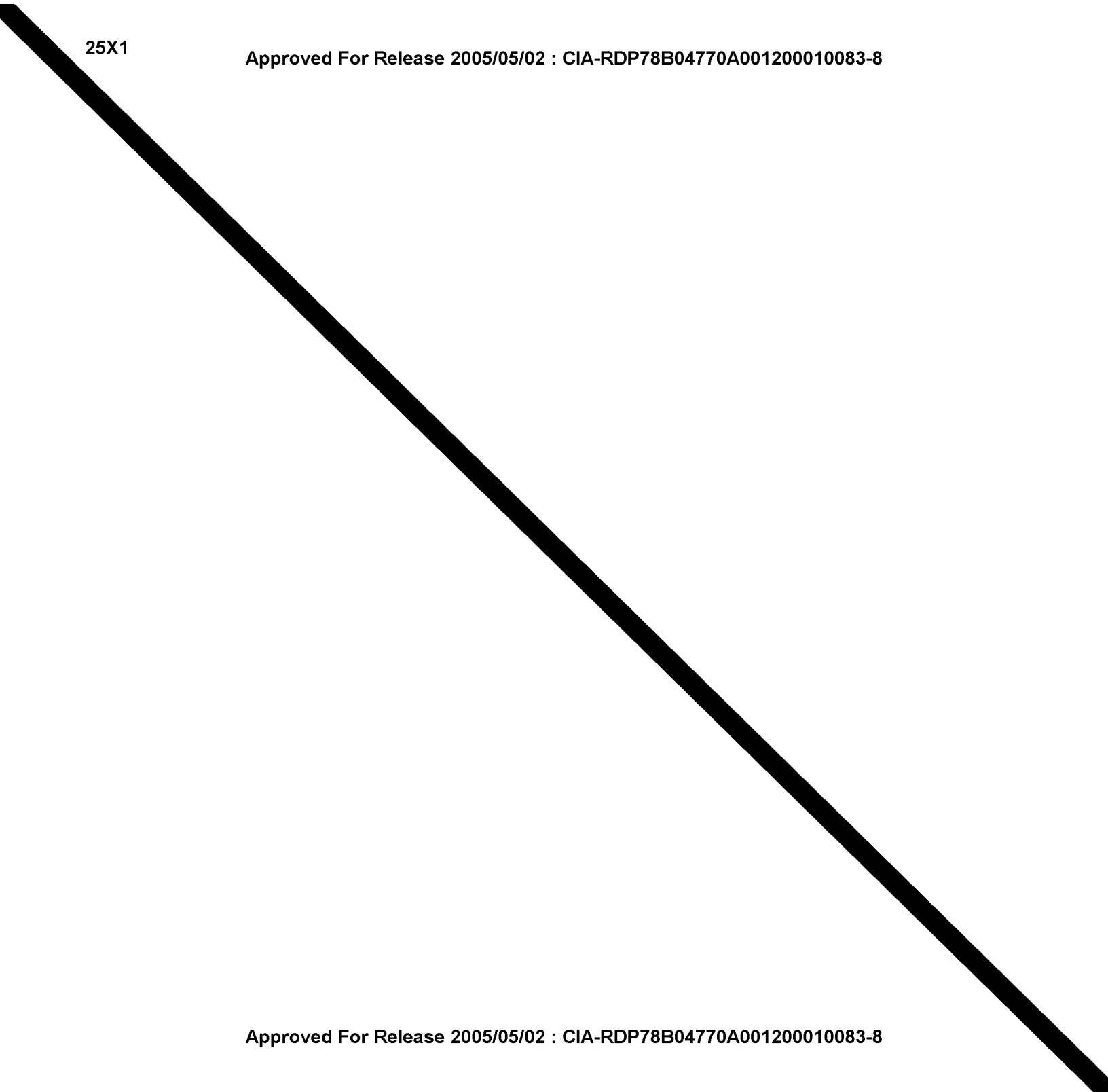

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